A Green Infrastructure Plan

to Restore, Connect, and Protect South Carolina's Habitats

Planning for Green Infrastructure involves protecting and connecting the natural and cultural assets of the Central Midlands region.

Green Infrastructure Center

FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE

SOUTH CAROLINA FORESTRY COMMISSION

CENTRAL MIDLANDS Council of Governments

March 2023

Prepared for the state of South Carolina by the Green Infrastructure Center
Funded by the South Carolina Forestry Commission and the USDA Forest Service, Southern Region

Executive Summary

The Central Midlands Council of Governments (COG) region contains diverse natural and cultural resources, from blackwater rivers to historic battlefields and churches. With several major interstate highways, the state capitol, economic diversity, and a high quality of life, the Central Midlands region continues to thrive. While economic prosperity is very important to the communities in this region, it is vital to grow in patterns that conserve the region's natural resources and habitats. Continuation of local efforts to conserve land, create regional partnerships, and establish both ordinances and planning guidance for growth that protects green infrastructure will ensure the high quality of life of the Central Midlands region for future generations.

The Central Midlands COG region is in the middle of the state with the state capitol Columbia at its center. It is bounded on the west by Lake Murray and the Saluda River and on the east by Wateree Lake, Congaree National Park and the Congaree and Wateree Rivers. It encompasses the counties of Richland, Fairfield, Newberry, and Lexington. The Central Midlands region includes forests, wetlands, blackwater rivers, lakes, and agricultural fields. Richland, Newberry, and Lexington are fast growing counties, while Fairfield remains a predominantly rural county. Congaree National Park and the Cowasee Basin, Lakes Murray, Wateree, and Monticello, and Francis Marion and Sumter National Forest contribute to a sense of place rooted in nature-based recreation. Additionally, there is a military presence in the region with Fort Jackson and McIntire Joint National Guard Base. Approximately 11% of the land in the Central Midlands COG region is protected in several state parks, national wildlife refuges, wildlife management areas, National Parks and Forests, military land, and other open spaces.

This region is the ancestral home of the Congaree and Catawba Native people.* The Catawba Nation is the only federally recognized tribe currently in South Carolina and has a reservation in the Catawba COG region. The Beaver Creek Indians and Natchez Tribe are state recognized native groups living in this region today.

Pine forest of the Congaree National Park

Green Infrastructure Planning Process

This Green Infrastructure (GI) Plan comprises a set of maps and strategies for conserving and restoring a connected landscape in the state. GIC led the Central Midlands COG and local stakeholders though GIC's Six-Step Green Infrastructure Planning Process with a series of four workshops from 2021-22. This process involved mapping habitats cores and corridors, as well as existing natural and cultural assets, followed by risk analysis to inform strategies for action. With these data, local stakeholders determined priority areas for conservation in the region, as well as strategies to ensure a connected landscape into the future. GIC followed regional COG workshops with state agency engagement. The resulting statewide plan is informed by and includes the COG's regional priorities.

This COG chapter will appear as a separate document, distinct from the full report, since it is one of ten COG chapters that have been included in the statewide assessment. The full report can be found here: https://scgiplan-gicinc.hub.arcgis.com/ or at www.gicinc.org or https://www.scfc.gov/management/urban-forestry/

The statewide scale of this project did not allow GIC to drill down to the level of county and city green infrastructure plans, but did establish important priorities for each region.

1. In the first workshop, GIC presented an overview of the project and shared a map of the region's ranked habitat cores. Feedback on the accuracy of the map and areas of development were noted and incorporated.

2. In the second workshop, GIC presented themed overlay maps that showed the region's agricultural soils, water resources, recreation, and cultural assets and asked workshop attendees to add their local input on additional assets, such as shell rings or cultural corridors. The final Central Midlands asset maps and dataset included new data recommended by participants.

Central Midlands FAST FACTS

1,847,040 acres– total COG area (2,886 mi²)

1,048,320 acres– of habitat cores (1,638 mi²)

57% of COG land area is habitat cores

184,960 acres– of protected cores (289 mi²)

18% of habitat cores are protected

210,560 acres– area of protected land (cores and other) (329 mi²)

11% of total area are protected land

103,040 acres– area of public parkland (161 mi²)

6% of total land is public parkland

648,960 acres– area of habitat cores with known cultural/archaeological resources (1,014 mi²)

321,920 acres– area of habitat cores with highest value ranking (top 5th) (503 mi²)

376,960 acres– area of habitat cores that intersect a groundwater protection zone (4589 mi²)

275,200 acres– area of prime agricultural soils on open land (430 mi²)

7,680 acres of wetlands (12 mi²)

906 mi of 1,265 mi (72%)– miles of streams that flow within a habitat core

322 of 869 (37%)– of habitat cores support cultural or recreational assets

49 of 869 (6%)– habitat cores that support known rare, threatened, or endangered species

Central Midlands COG

3. In the third workshop, GIC presented draft maps of risks to habitat cores in the region, including development, utility-scale solar development, and impaired waters. Stakeholder feedback about these risks was used to update and finalize the risk maps.

4. In the fourth and final workshop, GIC shared a strategy map that showed ranked habitat cores, protected lands, and regional corridors. The stakeholders then considered priority habitats and risks to those assets and recommended strategies to reduce or prevent impacts to high-value resources.

6-Step Green Infrastructure Planning Process

1. Set Your Goals What does your community value?

2. Review Data What do we know or need to know, to map identified values? Combine the state modeled data with local data.

3. Map Your Community's Ecological and Cultural Assets Based on the goals established in Step 1 and data from Step 2.

4. Assess Risk What assets are most at risk and what could be lost, if no action was taken?

5. Rank Assets and Determine Opportunities Based on those assets and risks you have identified, which ones should be restored or improved?

6. Implement Opportunities Include natural asset maps in both daily and long-range planning (park planning, comp plans, zoning, tourism and economic development, seeking easements etc.)

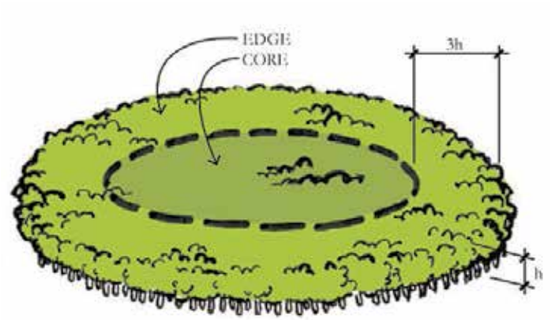
Habitat Cores

Habitat cores are intact areas of the landscape that provide adequate habitat to support native species and were modeled using source data from the 2019 National Land Cover Dataset. Habitat cores are forests, forested wetlands, and marshes at least 100 acres or more in size and are ranked using additional attributes such as water richness, topography, and the presence of rare, endangered, or threatened species. This size is large enough to provide adequate foraging and nesting habitat for interior forest dwelling birds and to support a range of other wildlife species.

Habitat cores encompass 57% of Central Midlands COG land area.

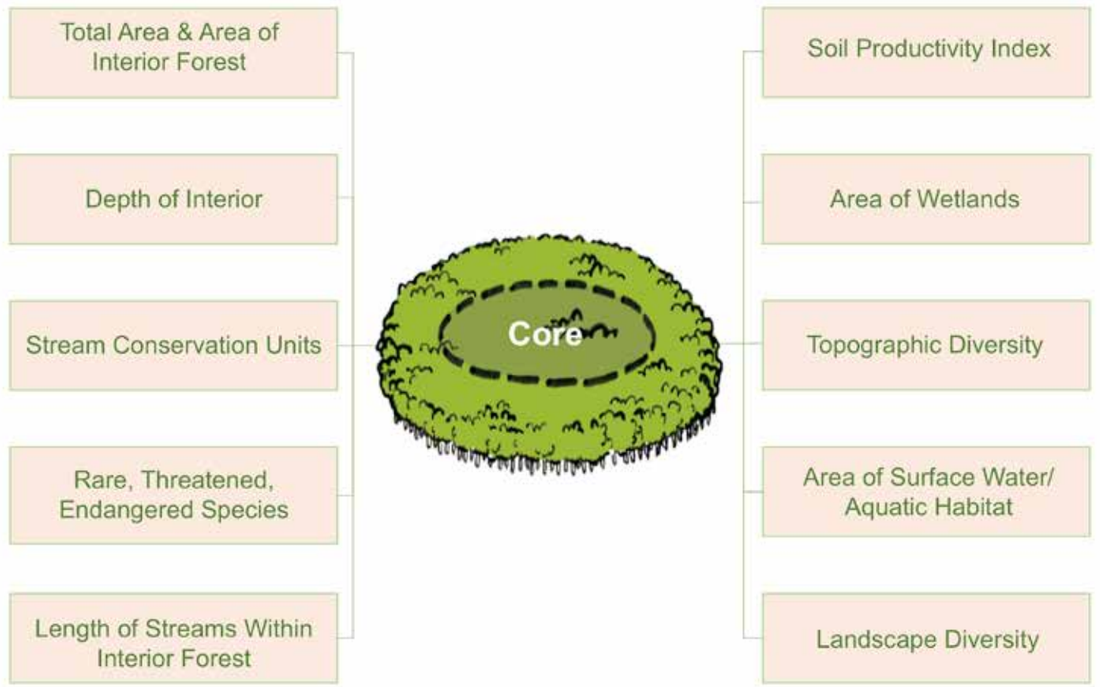
For more on how habitat cores are created, see the Methods and Maps section (page 7) and the Technical Appendix of the full report.

Ranking cores for the values they provide allows land-use planners, agency officials, and site managers to prioritize those specific habitat cores that best meet management goals and objectives, while providing the highest value for species.



Habitat cores consist of an area of intact interior wildlife habitat of 100 acres or more and an edge area that serves as a buffer absorbing impacts from outside the core.

Habitat cores are ranked based on these ecological metrics.

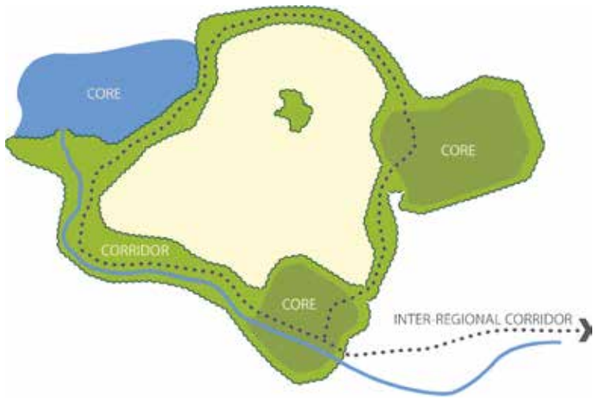


GIC modeled and mapped ranked habitat cores across both the region and state, based on ecological metrics, *see chart above*.

Corridors

Wildlife moves between habitat cores along corridors that support biodiversity by allowing species to move across the landscape and repopulate areas following such disturbances as hurricanes or fires. Restoration or preservation of corridors may also present opportunities to incorporate trails for human recreation. In addition to regional corridors, GIC modeled corridors that are of statewide importance. A graphic representation of this connectivity is displayed on the maps as state and local corridor lines. As the region continues to grow, every effort should be made to continue to maintain these corridors for a more connected and resilient landscape.

For more on corridor modeling see the Introduction section (pages 10 and 11) and the Technical Appendix of the full report.



Green Infrastructure planning is about connecting the landscape. Corridors provide connections between core habitats. A well-connected landscape is more resilient.

Central Midlands COG

Assets

Natural Assets are the environmental elements that provide healthy surroundings, recreational opportunities, and clean water and food for both people and wildlife. These natural assets include forests, waterways, wetlands, bays, agricultural soils, and other natural resources. *Cultural Assets* are the landscape elements or uses that people value, such as parks, boat landings, trails, historic or archaeological sites, or scenic vistas and roads that add to the beauty of the area. Natural assets support cultural assets by providing scenic backdrops to historic sites, buffering them from storms and providing settings in which to enjoy them, such as the trails through historic sites that engage visitors in history while they enjoy the natural surroundings. GIC mapped these assets using existing state and national datasets, as well as data from stakeholders. The asset maps include water, agriculture, recreation, and cultural assets. Locating these assets is the first step in protecting them and allows decision-makers and planners to make more informed decisions about growth and conservation.

Risks

Mapping important habitats, agricultural soils, and cultural sites is only a first step towards planning to conserve important assets into the future. Mapping risks, in order to understand which assets are most vulnerable is the next step. GIC analyzed the following risks across the state: sea level rise, storm surge, impaired waters, development, and solar development. These risk maps can be used to determine most critical regional risks and priority areas for conservation. Impaired waters maps can be used to determine areas to target for riparian plantings. Development and solar development maps can guide conservation efforts, as well as planning policy. Tools to mitigate risk can also include establishing solar ordinances, or drawing urban growth boundaries to avoid high-value habitat cores.

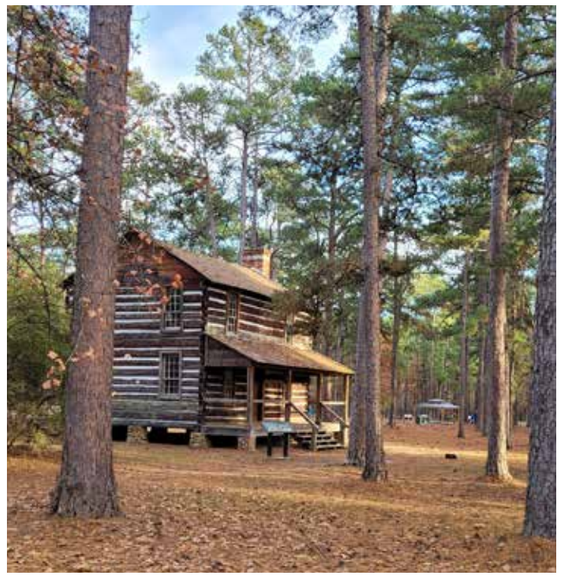
Central Midlands Risks

27 of 869 (3%) habitat cores with **impaired streams**

237 of 869 (38%) habitat cores at risk of **development**

579 of 869 (67%) habitat cores at risk of **solar development**

672 of 869 (77%) habitat cores at **cumulative risk**



Sesquicentennial State Park

Regional Observations

The Central Midlands region's highest quality habitat cores are found in the Cowasee Basin and Francis Marion and Sumter National Forests. Additional high-quality cores are found along the Broad River and in Fort Jackson. The larger wildlife corridors in the region follow the Broad, Wateree, Saluda, and Congaree River Corridors and connectivity can be ensured or restored by maintaining and planting buffers and seeking protection along these rivers. The prime agricultural soils in the region are found primarily in Richland, Newberry, and Lexington counties, also areas facing development pressure. The region supports nature based recreational assets, such as such as paddling a blackwater river, hiking in a national park or forest, fishing or boating on a lake, and biking along the Palmetto Trail through Fort Jackson. The number of assets highlighted in the maps is the result of participation by stakeholders so the counties that participated in the process are likely to see more assets for their region represented on the maps.

Protected land makes up 11% of the total area in the Central Midlands COG, below the statewide rate of 14%. The Governor has adopted the 30 by 30 goal to preserve 30% of the state by 2030. To achieve this goal, the region will need to triple its protected lands and should continue to work with the Congaree Land Trust and other organizations to protect high value habitat cores and corridors in the region. Currently 18% of regional habitat cores are protected and the habitat cores and corridors map shows the most important lands that still need protection. Public park land in the region is 6% of the total area, above the 5% statewide rate. As the region continues to grow, South Carolina Parks Recreation and Tourism and local governments should prioritize more high-quality public park space in the region and utilize habitat cores as a key criterion for future parkland.

The greatest risk for the region is development, especially suburban sprawl-patterned growth and utility scale solar development. Urban development risks are greatest along the I-77 and I-26 corridors as well as in Richland County between Fort Jackson and Congaree National Park. Additionally, habitat cores and prime agricultural soils across the region are at risk of development for utility-scale solar farms. Planning for smart, compact growth will be critical to maintain habitat connectivity, food production capability, and quality of life in the region.

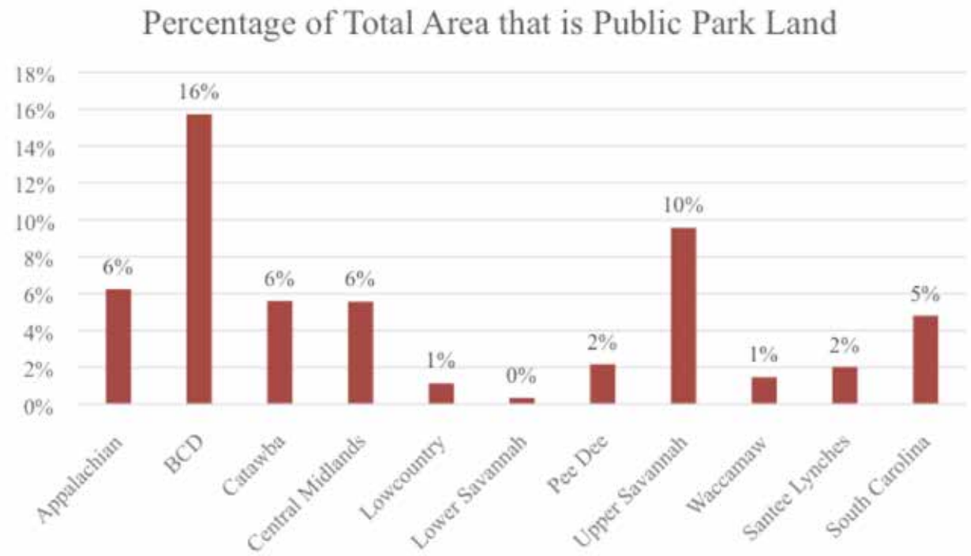
Regional Stakeholders

Participants in the Central Midlands stakeholder workshops include representatives from:

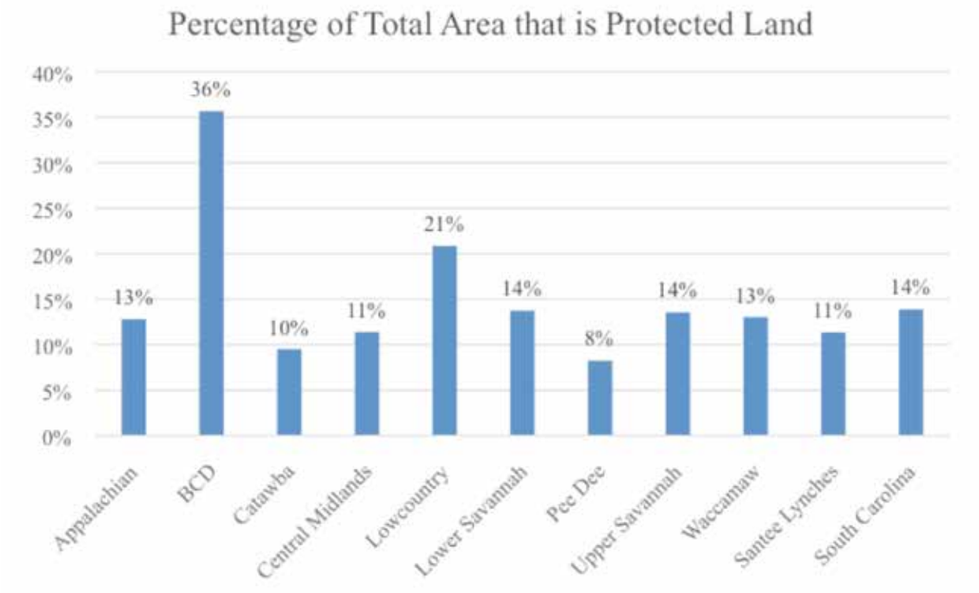
- Central Midlands Council of Governments
- Lexington County
- City of Columbia
- University of South Carolina
- Congaree Land Trust
- Congaree National Park
- The Nature Conservancy
- SC National Guard
- SC Office of Resilience
- SC Department of Health and Environmental Control
- SC Forestry Commission

Fort Jackson National Cemetary

Central Midlands COG



The percentage of public park land in the Central Midlands region is 6%, above the 5% statewide rate.



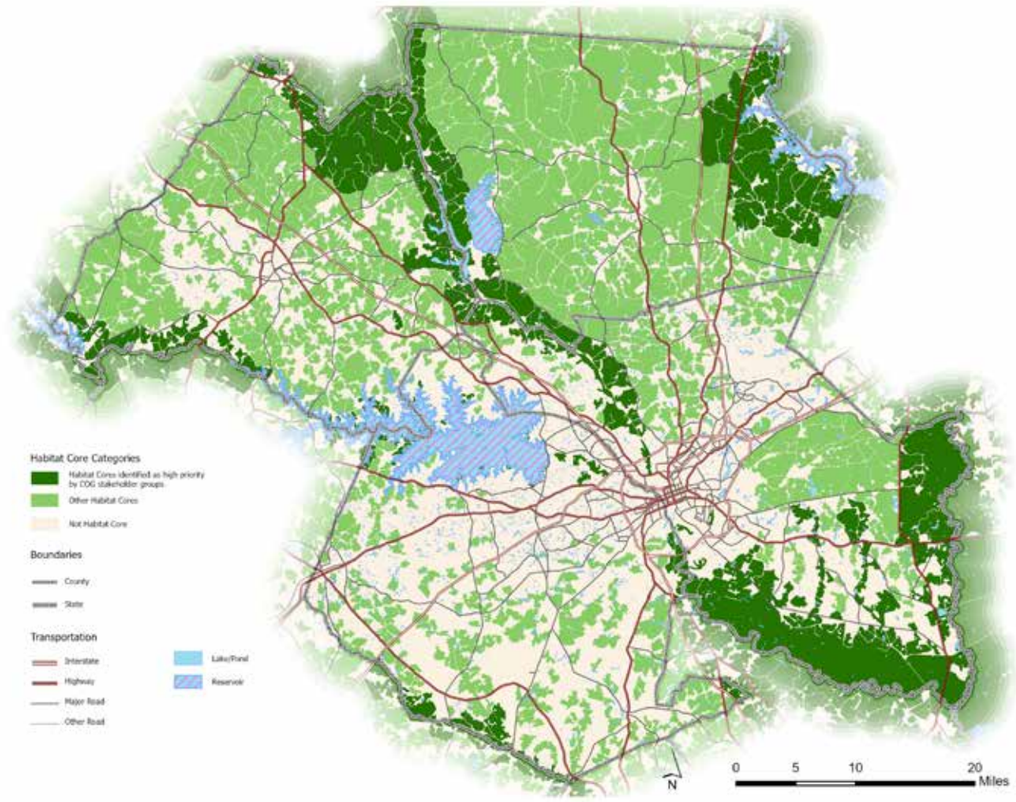
The percentage of protected land in the Central Midland region is 11% below the 14% statewide rate.

Central Midlands Priority Areas

Central Midlands stakeholders identified several areas in the region that are priorities for protection and restoration.

- Protect and restore the Cowasee Basin. The Congaree Land Trust and the Cowasee Basin Task Force are focused on conserving properties of 250 acres or more.
- Integrate wildlife crossings and enhancements into the design of the roadway expansion project between Newberry and Columbia.
- Protect and restore Gills Creek in Columbia as a regional corridor.
- Protect and restore the Broad River Corridor.
- Protect and restore the Catawba River Corridor and collaborate on strategies with the Catawba COG.
- Protect and restore the Saluda River Corridor with a focus on water quality and greenway projects in Lexington and Richland Counties.
- Protect and restore Tom's Creek and Cedar Creek between Fort Jackson and Congaree National Park. The National Park Service would like to partner on buffer planting projects in these corridors.

Central Midlands COG Priority Areas Map



This map illustrates the habitat cores corresponding to the COG identified priority areas for protection and restoration.

Central Midlands COG

Central Midlands Strategies

Project maps to inform these strategies can be found at the end of this chapter as well as on the project HUB site https://scgiplan-gicinc.hub.arcgis.com/. Users can access all the data online and download county data.

Strategy 1: Enact a green space sales tax.

Fairfield, Newberry, Lexington, and Richland Counties should consider a ballot measure for a Green Space Sales Tax to raise funds for land conservation. Counties can use the funds collaboratively to protect land across county boundaries.

Strategy 2: Create and strengthen solar ordinances.

Create solar ordinances in Lexington and Fairfield Counties. Strengthen solar ordinances in Richland and Newberry Counties. The South Carolina Energy Office has resources for creating or updating solar ordinances and examples of model solar ordinances.

Strategy 3: Connect protected lands.

Connect public protected lands by targeting future protections to corridor connections between these properties.

Strategy 4: Utilize data and maps from the Green Infrastructure Plan to guide trail planning in the Cowasee Basin.

Use the maps and data from this plan to focus on habitat connectivity in the bike and pedestrian master plan for the Cowasee Basin.

Strategy 5: Collaborate with Santee Lynches COG on protecting Cowasee Basin.

Central Midlands COG should collaborate with Santee Lynches COG on marketing and conservation of the Cowasee Basin's rich natural and cultural resources.

Strategy 6: Restore and protect red-cockaded woodpecker habitat.

Habitat for the red-cockaded woodpecker is a priority for the National Park Service with a focus area in Congaree National Park.

Strategy 7: Investigate wildlife crossing needs on I-26.

Wildlife Crossings are likely needed on I-26. Further study and analysis should be done to determine where wildlife enhancements would be effective.

Strategy 8: Use urban greenways as urban corridors for people and wildlife.

In urban areas, greenways should be used to protect or restore landscape connectivity with greenways as the main corridor and smaller, connecting trail sections branching off into neighborhoods. Educational signage along greenways should highlight the importance of cores, corridors, and connectivity.

Strategy 9: University of South Carolina Columbia will use its tree canopy assessment data to plan for green infrastructure.

USC Columbia sought a technical support grant from the SCFC to receive an urban tree canopy assessment and planning assistance from GIC. The university will use these data to meet tree canopy goals and prioritize new tree plantings.

Congaree National Park.

Strategy 10: The City of Cayce is using tree canopy assessment data to plan for green infrastructure.

The City of Cayce received a technical support grant from the SCFC to create an urban tree canopy assessment and planning assistance from GIC. The city will use these data to prioritize new tree plantings and integrate trees into stormwater planning.

Strategy 11: Develop conservation priorities for Lexington County.

There are opportunities for conservation in Lexington County but the area does not show up as a priority on statewide maps. It needs to be prioritized regionally. Lexington County should consider investing in a county-scale Green Infrastructure Plan utilizing data from this project as a foundation.

Next Steps

The data created for this plan are a foundation upon which to build a detailed local Green Infrastructure Plan. Any municipality or county wishing to pursue a more detailed local plan should contact GIC.

The purpose of this project was to identify and prioritize those green infrastructure assets that most urgently require protection or restoration in the state. The strategies and maps of habitat cores, corridors, assets, risks, and priorities provide a roadmap and shared vision for conservation and restoration efforts of state agencies, counties, cities, and landowners. Moving forward, agencies, planners, and citizens can view and download these priorities, maps, and data through the HUB site GIC has created in partnership with Esri. Additionally, the GIS datasets have been disseminated to all the agencies, municipalities, and organizations involved in this project to use in land use decisions and conservation planning. https://scgiplan-gicinc.hub.arcgis.com/

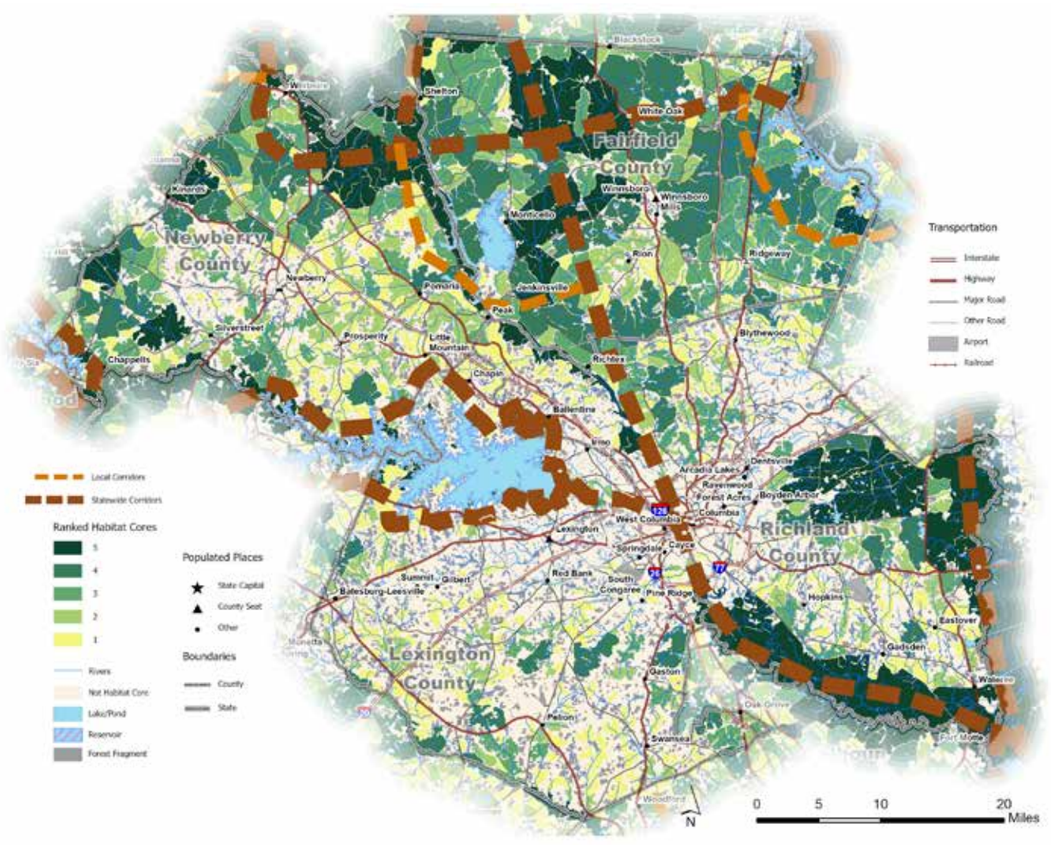
The Saluda River Walk brings people closer to nature, providing many health benefits and appreciation for this natural treasure.

Central Midlands COG

View all these maps on line and download habitat core data at:
https://scgiplan-gicinc.hub.arcgis.com/

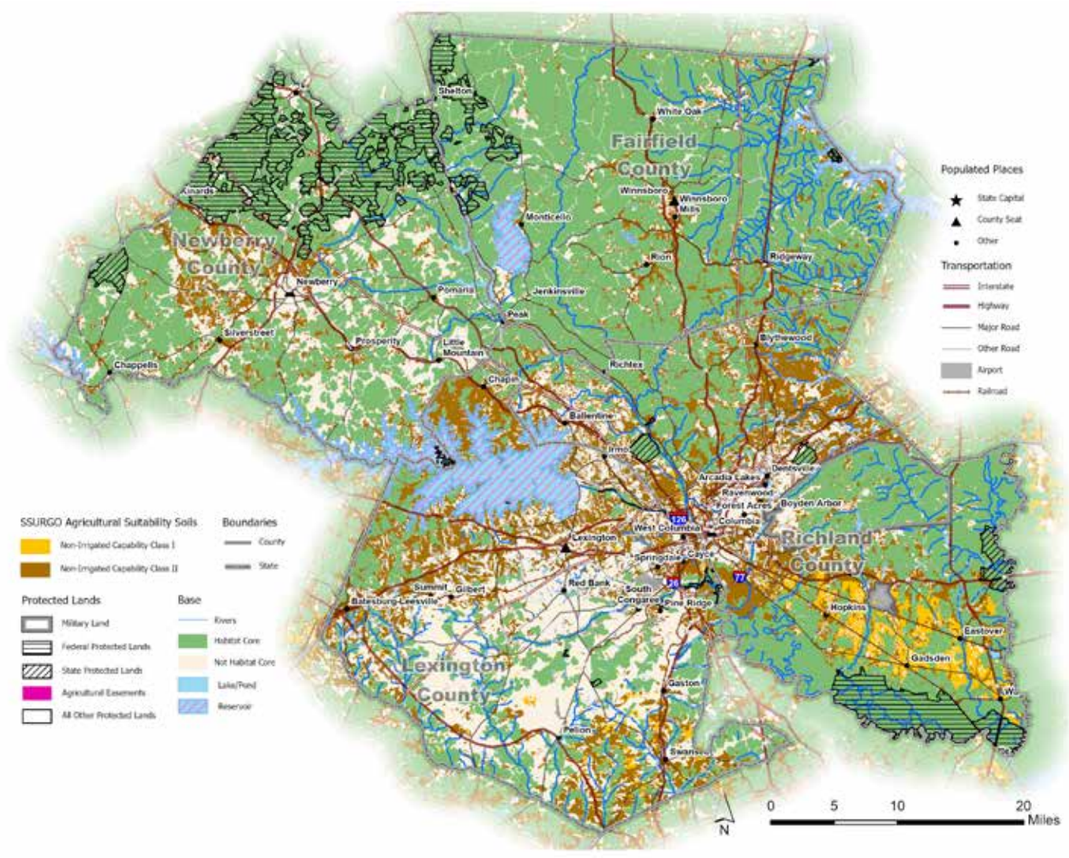
Maps

Central Midlands Strategic Planning Map: Ranked Habitat Cores and Corridors



Habitat cores are intact natural landscapes large enough to support interior forest or marsh dwelling species. This map depicts the region's habitat cores and shows them connected by corridors to form a network. The more connected the landscape, the more resilient it is and the more pathways there are for people, pollinators, and plants. The habitat cores are ranked based on ecological metrics, with dark green representing the highest quality habitat cores and yellow representing the lowest quality habitat cores. A ranking of 5 is the best and 1 is the lowest. Additionally, statewide and regional wildlife corridors are represented on this map by brown dashed lines.

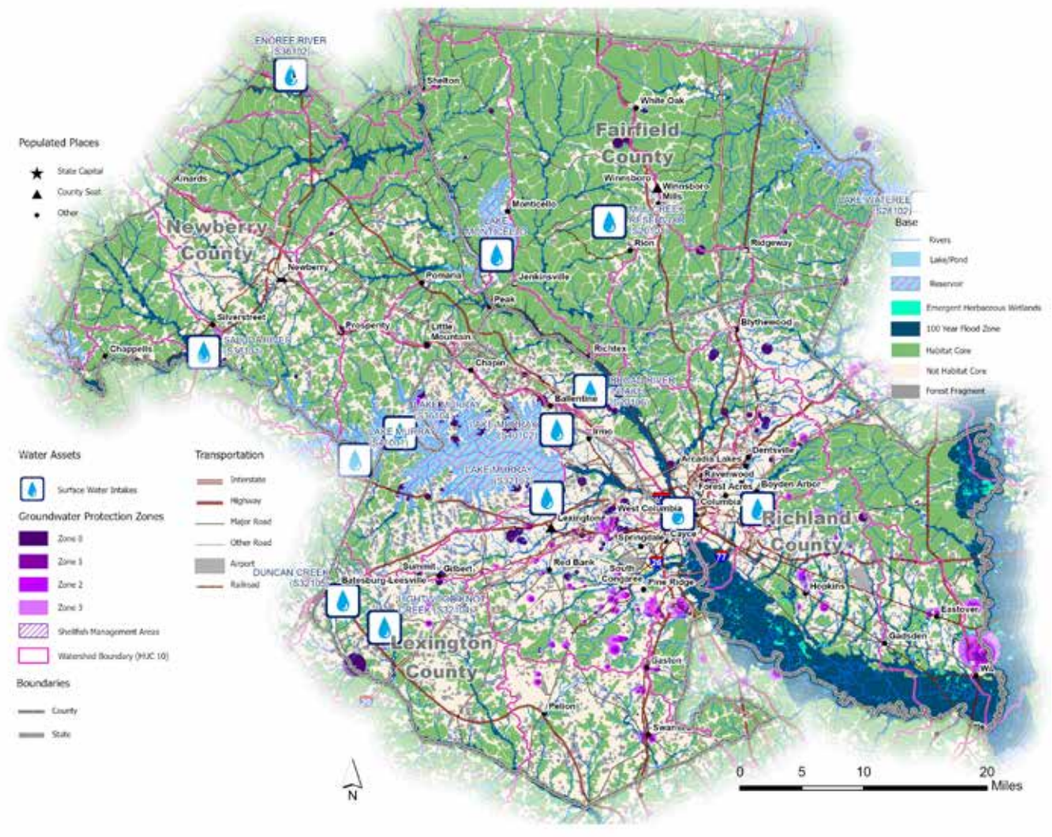
Central Midlands Assets: Agriculture Map



This map identifies the highest quality agriculture soils (classes 1 and 2) on open land, as well as agricultural easements in the region.

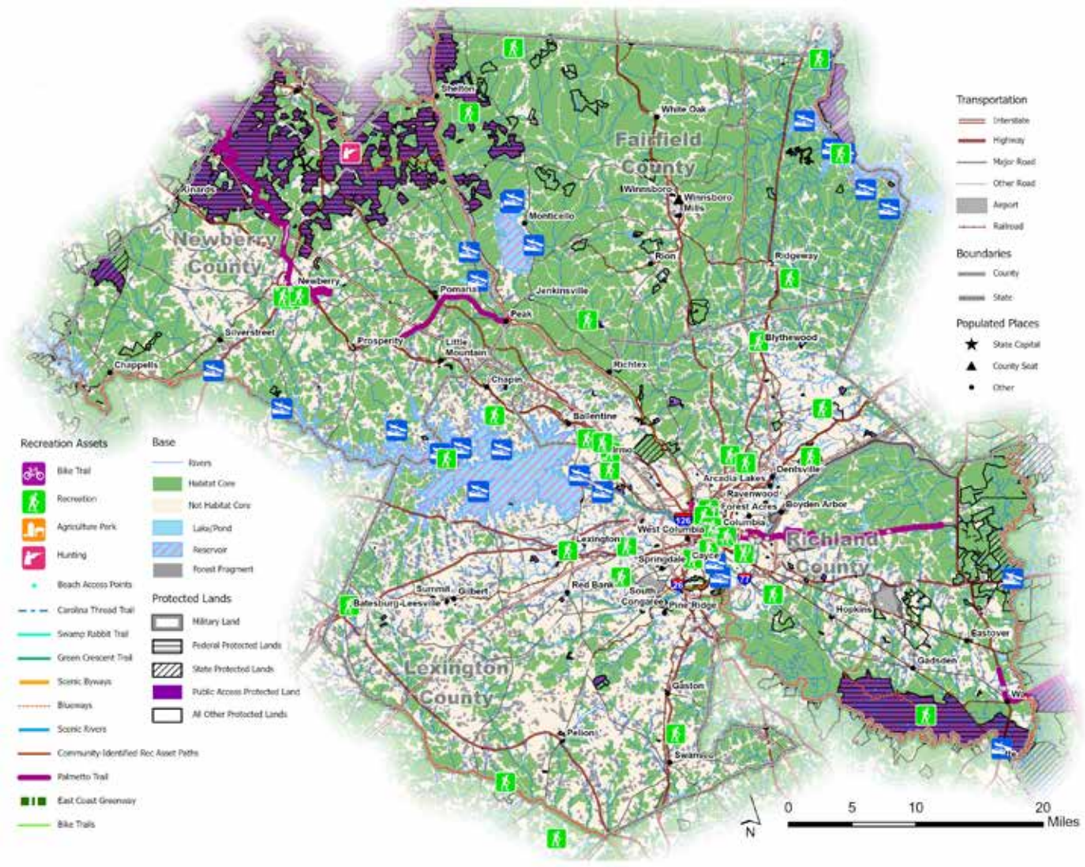
Central Midlands COG

Central Midlands Assets: Water Map



This map depicts drinking water reservoirs, surface water intakes, groundwater protection zones, and the 100-year floodplain in the CENTRAL MIDLANDS region. The many forests and wetlands in the region help cleanse runoff to protect surface water quality and provide groundwater recharge.

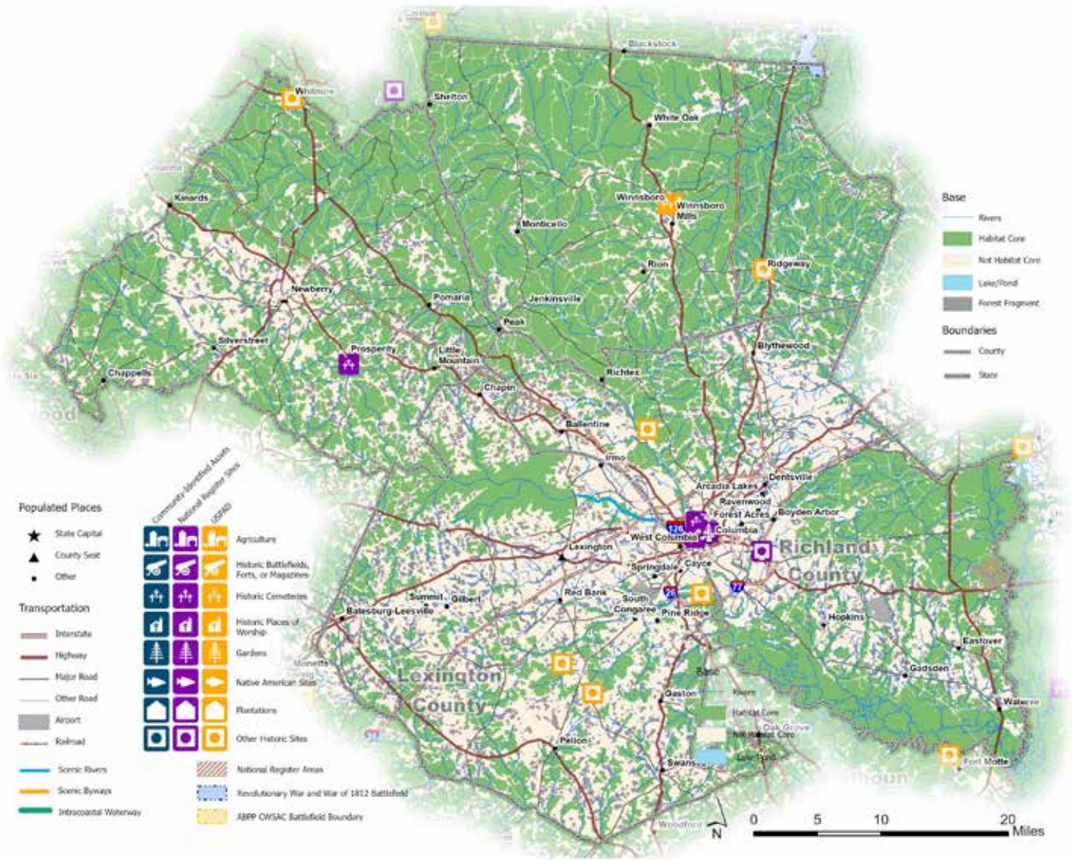
Central Midlands Assets: Recreation Map



This map depicts boat ramps, blueways, scenic rivers, scenic highways, greenways, Wildlife Management Areas, and federal, state, and local parks over 10 acres in the Central Midlands region. Many recreational activities depend on a healthy landscape for their enjoyment, such as hiking, birding, boating, fishing, hunting, and other nature-based sports. A healthy landscape provides both access and scenic settings for enjoying the outdoors. Large intact habitats provide refuge, shelter, and food for the many species that residents and tourists appreciate when enjoying the outdoors.

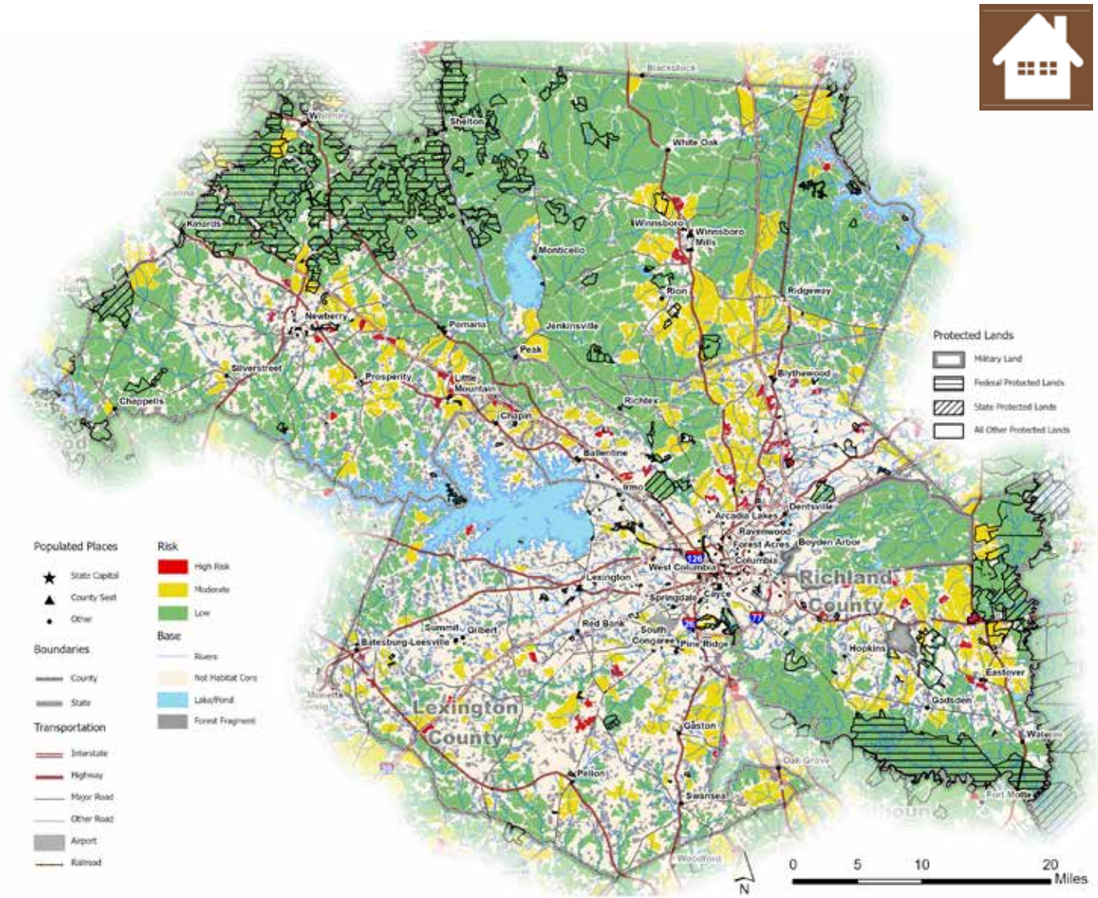
Central Midlands COG

Central Midlands Assets: Culture Map



This map displays historic sites, Native Peoples sites, cultural overlay districts, scenic highways, scenic rivers, and waterfalls in the Central Midlands region. Natural landscapes provide the context, backdrops, and buffers for these sites and contribute to their settings and beauty.

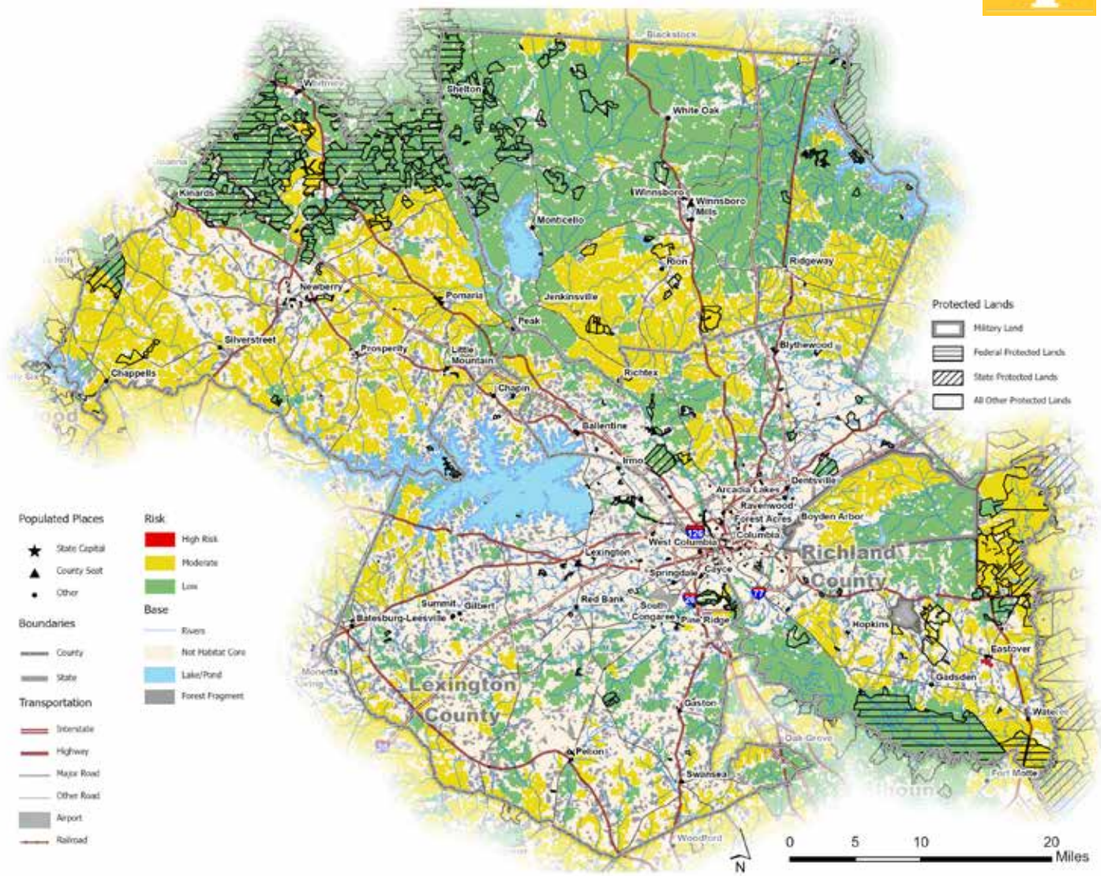
Central Midlands Risks: Development Risk Map



This map depicts the level of development risk based on the SLEUTH Urban Growth Model projected to the year 2060, with protected lands excluded.

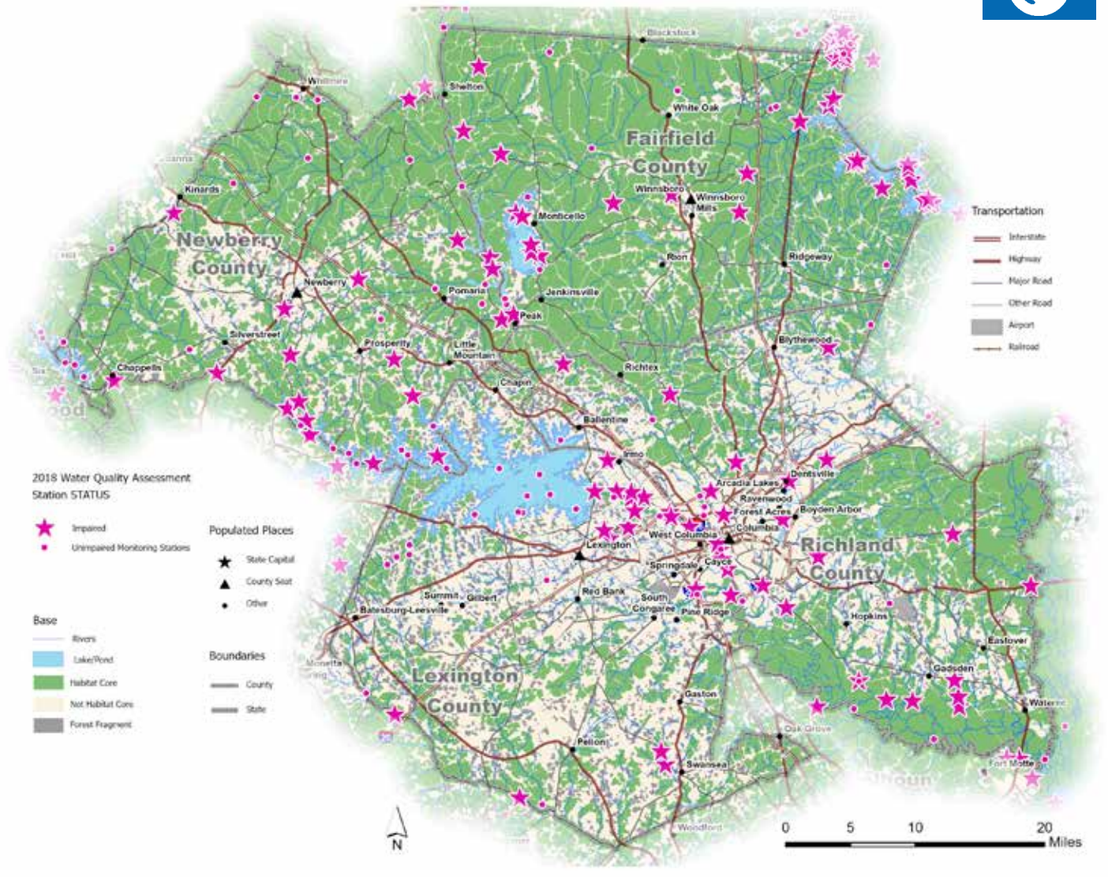
Central Midlands COG

Central Midlands Risks: Solar Development Risk Map



This map depicts the level of solar development risk based on Argonne Lab's Solar Site Suitability Analysis, with wetlands and protected lands excluded.

Central Midlands Risks: Water Quality Impairments Map



This map depicts water quality assessment sites and specific impairments across the region, and includes SC DHEC Water Quality Assessment data.

Notes

*Native people of the Central Midlands region as shown on Native Land Map:
Disclaimer from https://native-land.ca/
This map does not represent or intend to represent official or legal boundaries of any Indigenous Nations. To learn about definitive boundaries, contact the nations in question.

Acknowledgments

Any part of this report may be reproduced, with credit to the Green Infrastructure Center Inc.and the South Carolina Forestry Commission.

Publication Date: March 2023. This guide may be downloaded and printed. All images, graphics and maps in this report are by the Green Infrastructure Center Inc. unless otherwise credited.

Contributing authors to this report include the following Green Infrastructure Center staff: Lauren Doran, Matt Lee, and Karen Firehock; maps are by Stuart Sheppard and Christian Schluter; editing by Tim Lewis.

To obtain any materials presented in this report please contact:
GIC, 320 Valley St., Scottsville VA 24590-4996: Tel: 434-286-3119.
Or visit our website for resources at: http://www.gicinc.org